

## RESEARCH ARTICLE

# Severe Manifestations and Grave Prognosis in Young Patients with Gastric Cancer in Thailand

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## Abstract

**Background:** Gastric cancer is the second leading cause of cancer death worldwide and occurs most frequently in the age group of 50-70 years. Rarely reports have appeared regarding younger age groups. The purpose of this study was to compare clinical characteristics and outcome of treatment between young and elderly patients with gastric cancer in Thailand. **Materials and Methods:** Clinical information, histological features, endoscopic findings and treatment outcome were reviewed and collected from Thammasat University Hospital, Pathumthani and Bangkok Medical Center, Bangkok, Thailand between September 2011-March 2015. **Results:** A total of 154 gastric tumor patients including 101 with benign tumors (22 males and 79 females, mean age= 62.6 years) and 53 with gastric cancers (27 males and 26 females, mean age= 60.6 years) were enrolled in this study. Gastric cancer patients presented with alarm symptoms such as anemia, anorexia and weight loss significantly more frequently than benign gastric tumor patients. In gastric cancer patients, mean duration of symptoms prior to diagnosis was shorter in younger (<40 years) than older patients (age ≥40 years) (73.3 days vs 84.8 days). Family history of GI malignancy and diffuse type of gastric cancer were significant greater in younger than older patients (36% vs 5% P=0.01; OR= 11.4, 95% CI = 1.8-74.7 and 73% vs 14%, P<0.01; OR= 16, 95% CI = 3.3-78, respectively) and 5-year survival rates were 9% in younger age patients and 19% in older age group. **Conclusions:** Most young patients with gastric cancer in Thailand feature aggressive manifestations with poorer prognosis than elderly patients. Early detection of gastric cancer in high risk young patients might be important key to improve survival rate and treatment outcome in this particular group.

**Keywords:** Gastric cancer - young patients - manifestations - prognosis - Thailand

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## Introduction

Gastric cancer is one of the important digestive cancers worldwide, and it is the fourth most common cancer and the second leading cause of cancer-related death, with over 700,000 deaths annually and occurs most frequently in the age group of 50-70 years (Vilaichone et al., 2003, Vilaichone et al., 2006). However, *Helicobacter pylori* (*H. pylori*) infection remains the major cause of this particular cancer (Demirel et al., 2013, Srinarong et al., 2014, Prapitpaibool et al., 2015). Over the past several decades, few studies have reported the prevalence of gastric cancer in the young only in 2-8% (Levine et al., 1983).

In Thailand, gastric cancer is the sixth most common cancer in males and ninth in females. The annual incidence is 5 cases per 100,000 populations and had poor prognosis (Chongchinant et al., 1984, Vilaichone et al., 2014). Prior studies have been suggested that young patients with gastric cancer were sometimes diagnosed with advanced stages and carried much worse prognosis than elderly group (Smith et al., 2006). In Southeast Asian countries, there are limited studies on prevalence, survival rate and

clinical characteristics of gastric cancer in the young. We conducted this study to evaluate all clinical characteristics of gastric tumor patients in Thailand. Furthermore, we compared the clinical presentations, endoscopic findings, histology and survival rate between gastric cancer in the young and elderly groups.

## Materials and Methods

Patients who have been diagnosed as gastric tumor by histopathological evaluation at Thammasat University Hospital, Pathumthani and Bangkok Medical Center, Bangkok, Thailand during September 2011- March 2015 were enrolled. Clinical information, endoscopic findings and histopathology of gastric tumor were recorded. The gastric tumor was classified to benign and malignant features. The gastric cancer was classified histologically according to the Lauren system into intestinal type and diffuses type by gastrointestinal pathologists and staging was classified according to early and advanced stage. The locations of tumors were recorded as proximal (cardia/fundus) and non-proximal area (body and antrum). Active

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**Table 1. Demographic Information of All Gastric Tumor Patients**

Characteristics	Benign gastric tumor (N=101)	Gastric cancer (N=53)	P-value
Mean age	62.6 (18-88)	60.6 (24-92)	
Sex			
Male	22 (22%)	27 (51%)	< 0.01
Female	79 (78%)	26 (49%)	
Clinical symptoms			
Nausea and vomiting	4 (4%)	14 (26%)	< 0.01
Dysphagia	1 (1%)	5 (10%)	0.02
Dyspepsia	58 (58%)	44 (83%)	< 0.01
Anorexia	8 (8%)	42 (79%)	< 0.01
Anemia	14 (14%)	22 (42%)	< 0.01
Melena	8 (8%)	13 (25%)	< 0.01
Weight loss	15 (15%)	49 (92%)	< 0.01
Palpable mass	1 (1%)	3 (6%)	0.07
Physical exams			
Hepatomegaly	0	1 (2%)	0.16
Ascites	0	5 (10%)	< 0.01
Palpable abdominal mass	1 (1%)	7 (14%)	< 0.01

**Table 2. Clinical and Endoscopic Features of Gastric Cancer (Gc) Patients**

Parameter	GC age < 40 years (N=11)	GC age ≥ 40 years (N=42)	P-value
Age (range)	36.5 (24-40)	66.07 (44-92)	
Sex			
Male	3 (27%)	24 (57%)	0.08
Female	8 (73%)	18 (43%)	
Symptoms			
N/V	5 (45%)	9 (21%)	0.11
Dysphagia	2 (18%)	3 (7%)	0.26
Dyspepsia	7 (64%)	29 (69%)	0.73
Anorexia	6 (54%)	29 (69%)	0.37
Anemia	3 (27%)	13 (31%)	0.81
Melena	2 (18%)	9 (21%)	0.81
Weight loss	7 (64%)	34 (81%)	0.22
PE Mass	2	2	0.13
FHx GI malignancy	4 (36%)	2 (5%)	0.01
Duration of symptom	73.3 (21-365)	84.8 (1-1200)	
H. pylori infection	8 (73%)	20 (48%)	0.14

**Table 3. Location, Histological Characteristics, Staging and Survival Rate of Gastric Cancer (GC) Patients**

Parameter	GC age < 40 years (N=11)	GC age ≥ 40 years (N=42)	P-value
Location			
Proximal	4 (36%)	7 (17%)	0.15
Non-Proximal	7 (64%)	35 (83%)	
Types			
Intestinal	3 (27%)	36 (86%)	< 0.01
Diffuse	8 (73%)	6 (14%)	
Staging			
Early	1 (9%)	19 (45%)	0.03
Advanced	10 (91%)	23 (55%)	
1-year survival rate	9 (82%)	32 (76%)	
5-year survival rate	1 (9%)	8 (19%)	

*H. pylori* infection defined as positive these organisms in gastric tissues' histopathology.

*Statistical analysis*

The statistical analysis was performed by using descriptive statistics analysis for the patients'

characteristics. All clinical findings of each patient were evaluated by independent-test or Chi-square test or Fisher's exact test where appropriate. The P-value <0.05 was considered to be statistically significant. All statistical analyses were performed using Epi Info Version 7 (Centers for Disease Control and Prevention - CDC). The study was conducted according to the good clinical practice guideline, and was approved by our local ethics committee.

**Results**

A total of 154 patients with gastric tumor were enrolled in this study and divided to 101 benign gastric tumors, 53 malignant tumors. The mean age of the patients was 61.9 years (range 18-92 years). There were 105 women (68%) and 49 men (32%) with female: male ratio of 2.1:1. Common presenting symptoms were dyspepsia (66%), anemia (23%), weight loss (42%), and anorexia (32%). Gastric cancer patients presented with alarm symptoms such as anemia, anorexia and weight loss were significantly more common than benign gastric tumor patients as shown in Table 1. Location of gastric tumor was proximal in 33/154 (21%) and non-proximal in 121/154 (79%). Only 1 case of benign gastric tumor died from cardiovascular disease. On the other hand, 50/53 patients (94%) of gastric cancer died from cancer related diseases.

In gastric cancer patients, 11/53 patients (21%) were younger than 40 years and 42/53 patients (79%) were older than 40 years. Male to female ratio was 1: 2.7 in young and 1.3 : 1 in older patients. Mean duration of symptoms prior to diagnosis was shorter in younger (<40 years) than older patients (age ≥40 years) (73.3 days vs 84.8 days). Family history of GI malignancy and diffuse type of gastric cancer were significant greater in younger than older patients (36% vs 5% P=0.01; OR=11.4, 95%CI =1.8-74.7 and 73% vs 14%, P<0.01; OR=16, 95%CI =3.3-78, respectively). Furthermore, advanced stage of gastric cancer had trend to be higher in younger than elderly patients (91% vs 55%, P=0.03; OR 8.3, 95%CI =1-70). Active *H. pylori* infection was not different between these 2 groups. 1-year and 5-year survival rate in young and elderly groups were 82% vs 76% and 9% vs 19%, respectively as shown in Table 2 and 3.

**Discussion**

Gastric cancer is one of the common fatal cancers especially in Asian countries. The apparent increases in the recent few decades might be due to more educated patients, more health consciousness, and better economic status to seek medical services at any earlier stage. Our study demonstrated that gastric cancer had significantly more common of alarm symptoms, positive ascites and palpable abdominal masses than benign tumor that might be useful markers as warning symptoms and signs for cancer detection. In gastric cancer, female was predominate in younger patients whereas male was predominated in elderly group same as prior reports (Theuer et al., 1996, Tso et al., 1987, Matley et al., 1988, Vilaichone et al., 2014). The explanation for male

preponderance in elderly patients might be due to longer exposure to the environmental carcinogens such as salt intake, alcohol, and exposure to nitrosamines. The cause of higher female patients in younger group is uncertain.

Several studies were also mentioned that family history of gastric cancer was an important risk factor in younger patients (Theuer et al., 1996, Ramos-De la Medina et al., 2004, Umeyama et al 1982) same as our results. The mean duration of symptoms before diagnoses was shorter in younger patients with gastric cancer than elderly group due to more severe manifestations and higher proportion of advance stage of diseases (Mori et al., 1985). Diffuse type was the majority type of gastric cancer in the young and the incidence rate of diffuse type was not decrease worldwide due to more difficult to diagnose and lack of association to precancerous lesions. The prognosis of gastric cancer was worse in patient with advanced stage of disease (Santoro et al., 2007). 1-year survival rate were comparable in young and elderly group (82% vs 76%). However, 5-year survival rate was poorer in young patients with gastric cancer (9% vs 19%). The possible explanation might be attributed to delay in diagnosis, more severe manifestations and high percentage of diffuse types in young patients.

In conclusion, Most of young patients with gastric cancer in Thailand had aggressive manifestations with poorer prognosis than elderly patients. Screening and early detection in high risk patients such as positive alarming symptoms and family history of gastric cancer might be important keys to improve survival rate and treatment outcome in this special group of patients. Future prospective studies are needed to clarify risk of gastric cancer in the young.

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